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Mr. Kenneth Bruno
Program Manager
Gas Safety and Reliability Branch
Safety and Enforcement Division
California Public Utilities Commission
320 W. Fourth Street, Suite 500
Los Angeles, CA 90013

Dear Mr. Bruno:

The Safety and Enforcement Division (SED) of the California Public Utilities Commission (Commission) conducted a G.O. 112¹ Comprehensive Operation and Maintenance Inspection of San Diego Gas & Electric Company's (SDG&E) Liquefied Natural Gas (LNG) Facilities in Borrego Springs (Inspection Unit) on February 19-20, 2015. The inspection included a review of the Inspection Unit's Operation and Maintenance records and field inspections of the LNG facilities in Borrego Springs. SED staff also reviewed the Inspection Unit's Operator Qualification records. SED reviewed Sempra's Public Awareness Program (PAP) that covers this facility in a separate inspection.

SED staff did not identify any probable violation of G.O. 112, Reference Title 49 Code of Federal Regulations (CFR), Parts 192 and 193, but noted some concerns and offered recommendations. These are described in the "Summary of Inspection Findings", which is enclosed with this letter, along with SDG&E's response.

Please feel free to contact me at (213) 305-8660 if you have any questions or need additional information.

Sincerely,

W. Jeff Koskie

Attachments

¹ General Order 112-F was adopted by the Commission on June 25, 2015 in Decision 15-06-044.

**Summary of Inspection Findings
2015 SDG&E's LNG Borrego Springs Inspection
February 19-20, 2015**

SED Concerns/ Recommendations

1) Title 49 CFR, Part 191 §191.5 Immediate notice of certain incidents, states:

“(a) At the earliest practicable moment following discovery, each operator shall give notice in accordance with paragraph (b) of this section of each incident as defined in §191.3.

“(b) Each notice required by paragraph (a) of this section must be made to the National Response Center either by telephone to 800-424-8802 (in Washington, DC, 202 267-2675) or electronically at <http://www.nrc.uscg.mil> and must include the following information:”

SDG&E's Natural Gas Operations currently has a written Operation, maintenance and emergency response plan and a written emergency reporting procedure that met the requirement of Title 49 CFR, Part 191, §191.5. However, SDG&E's LNG Operations & Maintenance Plan and Emergency Plan did not address reporting requirements of Part 191, §191.5. SDG&E indicated that it uses the same emergency reporting plan it established under its Natural Gas operations, maintenance and emergency for its LNG facilities operations. Although, SDG&E personnel verbally referenced its existing Natural Gas' operations, maintenance, emergency response plans, and emergency reporting procedures during the inspection but there was no written reference to these plans and procedures in its LNG operation, maintenance and emergency plans. SED recommends that SDG&E's LNG operations, maintenance and emergency plan, Section 5.5, reference its existing Natural Gas reporting and emergency notification procedures. SDG&E should indicate that it will use the referenced document to fulfill the LNG reporting requirements for Part 191, §§191.5, 191.15, 191.23 & 191.25.

SDG&E Response

SDG&E will add references in the Borrego LNG O&M Plan to Company Gas Standards G8222 Pipeline Incident Reports to Commission and PHMSA; National Transportation Safety Board (NTSB) Accident Investigation and G8229 Reports of Safety-Related Pipeline Conditions.

2) Title 49 CFR, Part 193 §193.2509 Emergency procedures states:

“(a) Each operator shall determine the types and places of emergencies other than fires that may reasonably be expected to occur at an LNG plant due to operating malfunctions, structural collapse, personnel error, forces of nature, and activities adjacent to the plant.”

SDG&E's emergency procedures for its Borrego Springs LNG facilities were inadequate. This section required that each operator shall *determine the types and places of emergencies other than fires that may reasonably be expected to occur at an LNG plant due to operating malfunctions, structural collapse, personnel error, forces of nature and etc.* This operator's Public Awareness Program addressed its Borrego Springs LNG facilities but SDG&E's LNG emergency procedures did not address other emergencies reasonably expected to occur at an LNG plant due to operating malfunctions, structural collapse, personnel error, forces of nature, etc. SED recommends that SDG&E's LNG emergency plan and procedures be modified to address other emergencies *reasonably expected to occur at an LNG plant due to operating malfunctions, structural collapse, personnel error, forces of nature.*

SDG&E Response

Other than known risks from fire or earthquake, SDG&E will investigate and add to the O&M Plan any additional reasonably possible causes of emergency conditions. These could include structural failure of tank foundation(s), personnel error during fill or transfer procedures, possible impact from nearby airfield, forces of nature such as flooding, etc. Once identified, SDG&E will include guidelines on how to respond to such conditions.

3) Title 49 CFR, Part 193 § 193.2503 Operating procedures states:

“Each operator shall follow one or more manuals of written procedures to provide safety in normal operation and in responding to an abnormal operation that would affect safety. The procedures must include provisions for:

- (a) Monitoring components or buildings according to the requirements of §193.2507.*
- (b) Startup and shutdown, including for initial startup, performance testing to demonstrate that components will operate satisfactory in service.*
- (c) Recognizing abnormal operating conditions.*
- (d) Purging and inserting components according to the requirements of §193.2517.”*

SDG&E’s LNG procedures did not adequately address each normal and abnormal operation and maintenance activities that would affect safety. SED recommends that SDG&E modify its LNG operation and maintenance procedures to address foreseeable operation and maintenance activities such as fill and transfer during normal and abnormal operation activities or it should reference the procedures in its Natural Gas Standards that addresses procedures that will be used for normal and abnormal operation activities in the LNG facilities.

SDG&E Response

SDG&E will modify its LNG operation and maintenance procedures to address foreseeable operation and maintenance activities including fill and transfer during normal and abnormal operation activities.

4) Title 49 CFR, Part 193 § 193.2513 Transfer procedures states:

- “(a) Each transfer of LNG or other hazardous fluid must be conducted in accordance with one or more manuals of written procedures to provide for safe transfers.*
- (b) The transfer procedures must include provisions for personnel to:*
- (1) Before transfer, verify that the transfer system is ready for use, with connections and controls in proper positions, including if the system could contain a combustible mixture, verifying that it has been...”*

SDG&E’s LNG transfer procedures did not adequately address fluid stratification, flow rate monitoring, etc. SED recommends that SDG&E modify its LNG procedures to address all the pertinent parts of this section.

SDG&E Response

SDG&E will work with LNG supplier Clean Energy to insure LNG transfer procedures comply with Title 49 CFR, Part 193 § 193.2513, including flow rate monitoring, minimize fluid stratification (if it occurs) and other requirements of this section.

5) Title 49 CFR, Part 193 §193.2615 Isolating and purging states:

“ (a) Before personnel begin maintenance activities on components handling flammable fluids which are isolated for maintenance, the component must be purged in accordance with a procedure which meets the requirements of AGA “Purging Principles and Practices,” unless the maintenance procedures under §193.2605 provide that the activity can be safely performed without purging.

(b) If the component or maintenance activity provides an ignition source, a technique in addition to isolation valves (such as removing spool pieces or valves and blank flanging the piping, or double block and bleed valving) must be used to ensure that the work area is free of flammable fluids.

SDG&E’s LNG procedures did not adequately address isolating and purging of LNG system prior to maintenance operations. SED recommends that SDG&E modify its LNG procedures to address all the applicable paragraphs of this section.

SDG&E Response

SDG&E developed a written gas control plan taking the LNG facility piping systems out of service which is available in case of an emergency. The isolation and purge plan will be added to LNG O&M plan. Typically isolating and purging the entire facility for any repairs or maintenance activities is unnecessary. If an activity or repair cannot be safely performed without purging a location specific isolation and purge plan for the piping section or component undergoing repairs or maintenance activities will be developed prior to performing the required activity. Isolation and purge plans are developed to be compliant with Title 49 CFR, Part 193 §193.2615 (Isolating and purging).

6) Title 49 CFR, Part 193 §193.2621 Testing transfer hoses states.

“Hoses used in LNG or flammable refrigerant transfer systems must be:

(a) Tested once each calendar year, but with intervals not exceeding 15 months, to the maximum pump pressure or relief valve setting; and

(b) Visually inspected for damage or defects before each use.”

SED recommends that SDG&E modify its LNG procedures to address all the applicable paragraphs of this section.

SDG&E Response

SDG&E has reached out to LNG supplier Clean Energy and this is the opinion they provided on this matter.

“In regards to the item you are referencing, Title CFR – Part 193 covers Liquefied Natural Gas Facilities, not the trailers that make deliveries. The specific section that was noted (193.2621) refers to any transfer hoses used in the plant’s operational processes to transfer liquid from process to storage tanks, between tanks, or the loading of containers (trailers, dewers, ISO containers, etc.) from the plant process or a storage tank. Those hoses require an annual pressure test and visual inspection before each use as stated.

The regulations regarding transfer hoses on the trailers fall under a different section (Part 177) of Title 49 CFR and only require that they are inspected prior to each use to ensure they are of “*sound quality, without defects detectable through visual observation*”.”

Eric Serensits
Logistics Manager



7) Title 49 CFR, Part 193 § 193.2625 Corrosion protection states:

(a) Each operator shall determine which metallic components could, unless corrosion is controlled, have their integrity or reliability adversely affected by external, internal, or atmospheric corrosion during their intended service life.

(b) Components whose integrity or reliability could be adversely affected by corrosion must be either—

(1) Protected from corrosion in accordance with §§193.2627 through 193.2635, as applicable; or

(2) Inspected and replaced under a program of scheduled maintenance in accordance with procedures established under §193.2605.

SED recommends that SDG&E modify its LNG procedures to address all the applicable paragraphs of this section or reference its Natural Gas standard procedures that addressed all the pertinent paragraphs of this section.

SDG&E Response

During the SED Audit, SDG&E shared the upcoming facility project plan to bring all remaining internal LNG facility piping that was below ground to an above ground condition. This included replacing the below grade copper piping with above grade stainless steel. This project was completed in 2015. Ongoing above ground facility inspections include monitoring for atmospheric corrosion and the two storage tank outer shells were recoated in 2014. Additionally,

SDG&E has been contracting for a service to provide API 510 inspections for the outer tanks. All park steel distribution piping is protected by an Impressed Cathodic Protection System and is maintained per CRF 192.465.

8) Title 49 CFR, Part 193 § 193.2711 Personnel health states:

“Each operator shall follow a written plan to verify that personnel assigned operating, maintenance, security, or fire protection duties at the LNG plant do not have any physical condition that would impair performance of their assigned duties. The plan must be designed to detect both readily observable disorders, such as physical handicaps or injury, and conditions requiring professional examination for discovery.”

SED recommends that SDG&E modify its LNG procedures to address all the applicable paragraphs of this section or reference its Natural Gas standards that addressed these pertinent paragraphs.

SDG&E Response

Employees assigned to work at SDG&E’s LNG facility are currently covered by mandatory Department of Transportation Drug & Alcohol Testing Programs. Employees are subject to random drug testing and to “for cause” drug and alcohol testing either post incident or for observed behaviors. Additionally all employees are required to report any work related injuries and any non-work related injuries that include work restrictions to their immediate supervisor. Supervisors are always alert to any employee that may appear to be in pain or under some physical duress.

9) Title 49 CFR, Part 193 § 193.2713 Training: operations and maintenance states:

“(a) Each operator shall provide and implement a written plan of initial training to instruct—
(1) All permanent maintenance, operating, and supervisory personnel—
(i) About the characteristics and hazards of LNG and other flammable fluids used or handled at the facility, including, with regard to LNG, low temperatures, flammability of mixtures with air, odorless vapor, boil- off characteristics, and reaction to water and water spray;
(ii) About the potential hazards involved in operating and maintenance activities; and
(iii) To carry out aspects of the operating and maintenance procedures under §§193.2503 and 193.2605 that relate to their assigned functions; and
(2) All personnel...”

SED recommends that SDG&E modify its LNG procedures to address all the applicable paragraphs of this section or reference its Natural Gas standards that currently addressed these pertinent paragraphs.

SDG&E Response

All qualified Borrego personnel entering the Borrego LNG facility receive training on the operations, maintenance, and hazards of LNG prior to performing any activities in the LNG facility. They are trained on the hazards of working with LNG including its cryogenic nature, LEL and UEL of LNG/air mixture, to never add water to an LNG spill or fire, LNG is odorless, and its boil-off characteristics. SDG&E will include supervisors in all training but not qualify them to work on the facility.

10) Title 49 CFR, Part 193 § 193.2715 Training: security states:

“(a) Personnel responsible for security at an LNG plant must be trained in accordance with a written plan of initial instruction to:

- (1) Recognize breaches of security;*
- (2) Carry out the security procedures under §193.2903 that relate to their assigned duties;*
- (3) Be familiar with basic plant operations and emergency procedures, as necessary to effectively perform their assigned duties; and*
- (4) Recognize conditions where security assistance is needed.*

(b) A written plan of continuing instruction must be conducted at intervals of not more than two years to keep all personnel having security duties current on the knowledge and skills they gained in the program of initial instruction.”

SED recommends that SDG&E modify its LNG procedures to address all the applicable paragraphs of this section or reference its Natural Gas standards that addressed these pertinent paragraphs.

SDG&E Response

SDG&E has reached out to SEMPRA Corporate Security on this matter. Special Agent Ron Shankles has responded and indicated he will look into this matter when he returns from vacation on 8/1/2016. We will document information on the roles and responsibilities of the personnel assigned to remotely monitor the Borrego LNG facility and add this information to the O&M Plan. Additionally we will include instruction on a two year refresher requirement for those responsible for site security.

11) Title 49 CFR, Part 193 § 193.2717 Training: fire protection states:

“(a) All personnel involved in maintenance and operations of an LNG plant, including their immediate supervisors, must be trained according to a written plan of initial instruction, including plant fire drills, to:

- (1) Know the potential causes and areas of fire;*
- (2) Know the types, sizes, and predictable consequences of fire; and*

(3) Know and be able to perform their assigned fire control duties according to the procedures established under §193.2509 and by proper use of equipment provided under §193.2801.

(b) A written plan of continuing instruction, including plant fire drills, must be conducted at intervals of not more than two years to keep personnel current on the knowledge and skills they gained in the instruction under paragraph (a) of the section.

(c) Plant fire drills must provide personnel hands-on experience in carrying out their duties under the fire emergency procedures required by §193.2509.”

SED recommends that SDG&E modify its LNG procedures to address all the applicable paragraphs of this section or reference its Natural Gas standards that currently addressed these pertinent paragraphs.

SDG&E Response

The work force that is dispatched to the Borrego LNG facility receives general fire hazard training and know the locations of the fire extinguishers at the facility. SDGE will incorporate hands-on fire extinguisher training to be conducted every 2 years. Immediate supervisors will also be included in this training

The site manager meets annually with the local fire department (all 3 shifts over 3 days) for an on-site review of the LNG facility ensuring their familiarity with the facility's operations, hazards, and safety features.